



Volunteer Lake Assessment Program Individual Lake Reports

HIGHLAND LAKE, STODDARD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	19,008	Max. Depth (m):	9.6	Flushing Rate (yr ⁻¹)	10.3	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	712	Mean Depth (m):	1.6	P Retention Coef:	0.49	1993	MESOTROPHIC	
Shore Length (m):	25,300	Volume (m ³):	4,721,000	Elevation (ft):	1294	2004	MESOTROPHIC	

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

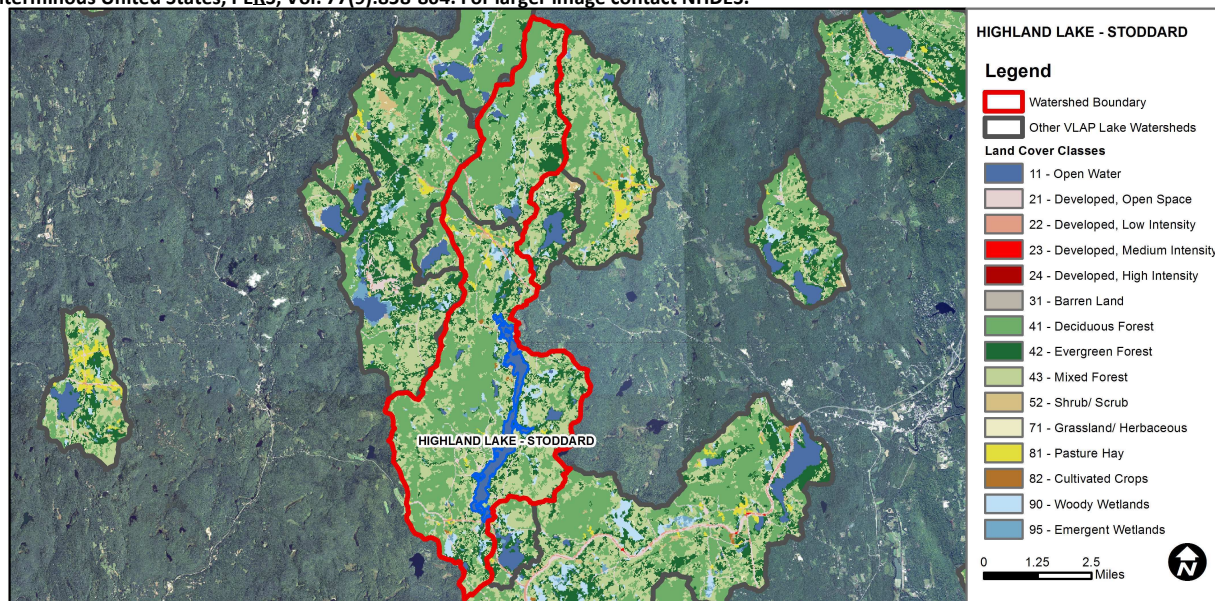
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Very Good	At least 10 samples with 0 exceedances of criteria.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

HIGHLAND LAKE-HIGHLAND LAKE BOAT LAUNCH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
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WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.2	Barren Land	0	Grassland/Herbaceous	0.05
Developed-Open Space	2.58	Deciduous Forest	39.23	Pasture Hay	0.92
Developed-Low Intensity	0.59	Evergreen Forest	15.01	Cultivated Crops	0.1
Developed-Medium Intensity	0.01	Mixed Forest	31.25	Woody Wetlands	3.49
Developed-High Intensity	0	Shrub-Scrub	0.58	Emergent Wetlands	0.91



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

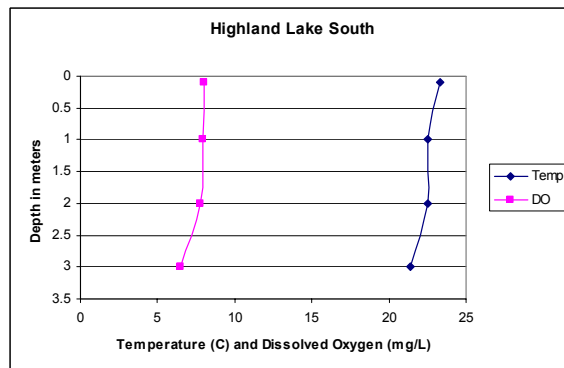
HIGHLAND LAKE, SOUTH STN, TOWN, NH

2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- CHLOROPHYLL-A:** Chlorophyll levels increased slightly as the summer progressed but were lower than those measured in 2011. Historical trend analysis indicates a significantly decreasing (improving) chlorophyll level since monitoring began. We hope to see this continue!
- CONDUCTIVITY/CHLORIDE:** Conductivity levels were low for all stations, but slightly higher in Dead Brook.
- TOTAL PHOSPHORUS:** Phosphorus levels in the Southern end of the lake were slightly higher than those in the Northern end. Epilimnetic (upper water layer) phosphorus levels were average and historical trend analysis indicates a relatively stable phosphorus level since monitoring began. Phosphorus levels in Dead, Kennedy and Rice Brooks were slightly elevated throughout the summer possibly due to low flow conditions.
- TRANSPARENCY:** Transparency levels were relatively good and historical data analysis indicates a stable transparency since monitoring began.
- TURBIDITY:** Turbidities were slightly higher overall this summer likely due to low flows and lake levels.
- pH:** pH levels were lower than desirable and potentially critical to aquatic life.
- RECOMMENDED ACTIONS:** Conductivity and phosphorus were slightly elevated in Dead Brook and it is recommended to conduct a site walk and storm event sampling to identify potential pollution sources. Keep up the great work!

Dissolved Oxygen & Temperature Profile



Station Name	Table 1. 2012 Average Water Quality Data for HIGHLAND LAKE, SOUTH STN								
	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m		ntu	
						NVS	VS		
Carr Brook				26.3	11			0.91	6.34
Carr Brook Pond				27.6	10			1.13	6.17
Dead Brook			3	41.1	17			1.12	6.29
Kennedy Brook			3	24.6	21			1.10	6.27
Rice Brook				24.0	19			1.22	6.03
Deep Epilimnion	2.63	3.12	3	23.5	12	2.79	2.95	1.37	6.26

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m³
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Improving	Significantly decreasing chlorophyll level.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.

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